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**Containment enclosures —**

**Part 2:**

Classification according to leak tightness and  
associated checking methods

*Enceintes de confinement —*

*Partie 2: Classification selon leur étanchéité et méthodes de contrôle  
associées*



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International Organization for Standardization  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10648-2 was prepared by Technical Committee ISO/TC 85, *Nuclear energy*, Subcommittee SC 2, *Radiation protection*.

ISO 10648 consists of the following parts, under the general title *Containment enclosures*:

- *Part 1: Design principles*
- *Part 2: Classification according to leak tightness and associated checking methods*

Annexes A to F of this part of ISO 10648 are for information only.

This is a preview of "ISO 10648-2:1994". Click [here](#) to purchase the full version from the ANSI store.

## Introduction

ISO 10648 applies to enclosures or enclosure lines intended to be used for work on

- radioactive and/or toxic products where containment is required for protection of personnel and the environment,
- sensitive products requiring a special atmosphere and/or a sterile medium.

It does not apply

- to pressurized vessels,
- to sealed sources,
- to transport packagings for radioactive materials,
- to enclosures, primary circuits and vessels of nuclear reactors.

# Containment enclosures —

## Part 2:

# Classification according to leak tightness and associated checking methods

### 1 Scope

This part of ISO 10648 gives a classification of containment enclosures according to leak tightness and specifies methods for checking this tightness for the following tests:

- manufacturing test at the factory,
- acceptance test at the laboratory,
- test before commissioning,
- periodical tests during operation.

These last two tests shall comply with relevant standards and local regulations.

The object of this part of ISO 10648 is to provide manufacturers, suppliers, users and the competent authorities with uniform principles in test procedures for testing the leak tightness of containment enclosures and for ascertaining the leak rate.

The tests cover the containment enclosures equipped with the basic components (see ISO 10648-1:—, annex B). All openings (for example glove ports and ventilation openings) are sealed with tight-fitting or sealable covers.

If additional equipments are to be used, a new control test taking into account these equipments should be performed.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10648. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10648 are encouraged to investigate the possibility of applying the most recent editions of the

standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6144:1981, *Gas analysis preparation of calibration gas mixtures — Static volumetric methods*.

ISO 10648-1:—<sup>1)</sup>, *Containment enclosures — Part 1: Design principles*.

### 3 Definitions

For the purposes of this part of ISO 10648, the following definitions apply.

**3.1 containment enclosure:** Enclosure designed to prevent the leakage of the products contained in the environment concerned into the external environment, or the penetration of substances of the external environment into the internal environment, or both at the same time.

**3.2 hourly leak rate,  $T_f$ :** Ratio between the hourly leakage  $F$  of the containment enclosure under normal working conditions (pressure and temperature) and the volume  $V$  of the said containment enclosure.

$$T_f = \frac{F}{V}$$

It is expressed in reciprocal hours.

### 4 Classification of containment enclosures according to their leak tightness

The classification of containment enclosures according to their hourly leak rate,  $T_f$ , is given in table 1.

The leak rate is measured at the normal operating pressure (usually about 250 Pa) for checking during operational use, and 1 000 Pa for the acceptance test.

1) To be published.